

## SECTION 7 The ways in which IT is used

### Recommended Prior Knowledge

Students will have used computers for basic word processing, databases and spreadsheet work. They should have covered all previous sections of the syllabus and the relevant aspects of the practical syllabus.

### Context

This section should be the seventh studied by the students. It builds on the knowledge obtained from studying all the previous sections.

### Outline

This section describes the application of IT in a variety of uses both in everyday life and work-related situations.

### Sub section 7.1

Section	Learning Outcomes	Suggested Teaching Activities	Online Resources	Other resources
7.1	Have an understanding of a range of IT applications in everyday life and be aware of the impact of IT with emphasis on the following.			
7.1a	Communicating applications, such as: <ul style="list-style-type: none"><li>• newsletters,</li><li>• websites,</li><li>• multimedia presentations,</li><li>• music scores,</li><li>• cartoons,</li><li>• flyers,</li><li>• posters.</li></ul>	Make use of the knowledge gained from Practical units 1 and 2.	<a href="http://www.bbc.co.uk/schools/gcsebitesize/ict/software/">http://www.bbc.co.uk/schools/gcsebitesize/ict/software/</a>	(Walmsley, et. al., 2004, Chpts 11 & 12)  (Leadbetter, & Wainwright, 2004, 11.2)
7.1b	Data handling applications, such as: <ul style="list-style-type: none"><li>• surveys,</li><li>• address lists,</li><li>• tuck shop records,</li><li>• clubs and society records,</li><li>• school reports,</li><li>• school libraries.</li></ul>	Make use of the knowledge gained from Practical unit 3.	<a href="http://www.bbc.co.uk/schools/gcsebitesize/ict/databases/index.shtml">http://www.bbc.co.uk/schools/gcsebitesize/ict/databases/index.shtml</a>  <a href="http://www.supersir.co.uk/Databases_index.htm">http://www.supersir.co.uk/Databases_index.htm</a>	(Walmsley, et. al., 2004, Chapter 13)  (Leadbetter, & Wainwright, 2004, 12.4)

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7.1c	Measurement applications, such as: <ul style="list-style-type: none"> <li>scientific experiments,</li> <li>electronic timing,</li> <li>environmental monitoring.</li> </ul>	Give examples based on students' own experiences such as science experiments in chemistry and physics.	<a href="http://www.bbc.co.uk/schools/gcsebitesize/ict/measurecontrol/index.shtml">http://www.bbc.co.uk/schools/gcsebitesize/ict/measurecontrol/index.shtml</a>	(Walmsley, et. al., 2004, Chapter 14)
7.1d	Control applications, such as: <ul style="list-style-type: none"> <li>turtle graphics,</li> <li>control of lights,</li> <li>buzzers and motors,</li> <li>automatic washing machines,</li> <li>automatic cookers,</li> <li>central heating controllers,</li> <li>burglar alarms,</li> <li>video recorders/players,</li> <li>microwave ovens,</li> <li>computer controlled greenhouse.</li> </ul>	Teach students how to use turtle graphics using a Logo based program. Discuss the use of control in the home.	<a href="http://www.bbc.co.uk/schools/gcsebitesize/ict/measurecontrol/index.shtml">http://www.bbc.co.uk/schools/gcsebitesize/ict/measurecontrol/index.shtml</a>  <a href="http://www.freescale.com/webapp/sps/site/overview.jsp?nodeId=023Z1Dj0Tc">http://www.freescale.com/webapp/sps/site/overview.jsp?nodeId=023Z1Dj0Tc</a>  <a href="http://www.softronix.com/logo.html">http://www.softronix.com/logo.html</a> (free LOGO download)  <a href="http://www.psionica.co.uk/gcseict/control.htm">http://www.psionica.co.uk/gcseict/control.htm</a>	(Leadbetter, & Wainwright, 2004, 15.5)  (Walmsley, et. al., 2004, Chapter 14)
7.1e	Modelling applications, such as: <ul style="list-style-type: none"> <li>3D modelling, simulation (e.g. flight or driving),</li> <li>use of spreadsheets for personal finance</li> <li>tuck shop finances.</li> </ul>	Emphasise that modelling is not just spreadsheets	<a href="http://www.bbc.co.uk/schools/gcsebitesize/ict/modelling/index.shtml">http://www.bbc.co.uk/schools/gcsebitesize/ict/modelling/index.shtml</a>	(Walmsley, et. al., 2004, Chapter 13)  (Leadbetter, & Wainwright, 2004, 11.4)

## Sub section 7.2

Section	Learning Outcomes	Suggested Teaching Activities	Online Resources	Other resources
7.2	Understand the differences between batch processing, on-line processing and real-time processing. Have an understanding of a wider range of work-related IT applications and their effects including the following:	<ul style="list-style-type: none"> <li>• Learn definitions in the three systems.</li> <li>• Examples of batch processing are the processing of bank cheques, payroll, non-automatic stock control systems, utility billing.</li> <li>• Examples of on-line processing are cash withdrawals from ATMs, EFT and EFTPOS systems.</li> <li>• Other examples of on-line processing are air ticket / holiday / theatre / cinema booking systems.</li> <li>• Examples of real-time processing are any control system which uses sensors requiring immediate response e.g. rockets fired onto space, robots, computer controlled air conditioning / central heating / burglar alarm, computer controlled greenhouses etc.</li> </ul>	<a href="http://www.bbc.co.uk/schools/gcsebite/ict/software/4operatingsystemsrev3.shtml">http://www.bbc.co.uk/schools/gcsebite/ict/software/4operatingsystemsrev3.shtml</a>  <a href="http://www.theteacher99.btinternet.co.uk/theteacher/gcse/newgcse/module6/task2.htm">http://www.theteacher99.btinternet.co.uk/theteacher/gcse/newgcse/module6/task2.htm</a>	(Walmsley, et. al., 2004, Chapter 9)
7.2a	Communication applications, such as: <ul style="list-style-type: none"> <li>• the Internet,</li> <li>• electronic mail,</li> <li>• fax,</li> <li>• electronic conferencing,</li> <li>• mobile telephones.</li> </ul>	Revisiting Section 4 will help as well as practical unit 1. In addition explain about tele/video conferencing.	<a href="http://www.bbc.co.uk/schools/gcsebite/ict/datacomm/index.shtml">http://www.bbc.co.uk/schools/gcsebite/ict/datacomm/index.shtml</a>	(Walmsley, et. al., 2004, Chapter 4)  (Leadbetter, & Wainwright, 2004, 11.2)
7.2b	Applications for publicity and corporate image publications, such as: <ul style="list-style-type: none"> <li>• business cards,</li> <li>• letterheads,</li> <li>• flyers,</li> <li>• brochures.</li> </ul>	Learn about use of DTP for producing advertising materials and the creation of web sites similarly.	<a href="http://www.zaxdtp.i12.com/why.htm">http://www.zaxdtp.i12.com/why.htm</a>	(Walmsley, et. al., 2004, Chapter 11)  (Leadbetter, & Wainwright, 2004, 11.2)

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7.2c	Applications in manufacturing industries, such as; <ul style="list-style-type: none"> <li>robotics in manufacture,</li> <li>production line control.</li> </ul>	Discuss use of robots in car industry and other similar applications. Emphasise the need for real-time processing.	<a href="http://www.theteacher99.btinternet.co.uk/theteacher/gcse/newgcse/module9/task1.htm">http://www.theteacher99.btinternet.co.uk/theteacher/gcse/newgcse/module9/task1.htm</a>	(Walmsley, et. al., 2004, Chapter 8)  (Leadbetter, & Wainwright, 2004, 15.5)
7.2d	Applications for finance departments, such as: <ul style="list-style-type: none"> <li>billing systems,</li> <li>stock control,</li> <li>payroll.</li> </ul>	Describe how computers are used in utility billing systems such as gas, electricity and water. Meter readings, turnaround documents and batch processing should be mentioned. The use of batch processing in some stock control systems and payroll systems should be described. The use of transaction and master files should be explained.	<a href="http://www.theteacher99.btinternet.co.uk/theteacher/gcse/newgcse/module9/task10.htm">http://www.theteacher99.btinternet.co.uk/theteacher/gcse/newgcse/module9/task10.htm</a>	(Walmsley, et. al., 2004, Chpts 7 & 9)  (Leadbetter, & Wainwright, 2004, 14.3)
7.2e	School management systems including: <ul style="list-style-type: none"> <li>registration,</li> <li>records</li> <li>reports.</li> </ul>	Describe computerised registration using OMR. Include how pupil records are stored and used and how school reports can be produced	<a href="http://www.theteacher99.btinternet.co.uk/theteacher/gcse/newgcse/module9/task12.htm">http://www.theteacher99.btinternet.co.uk/theteacher/gcse/newgcse/module9/task12.htm</a>	
7.2f	Booking systems, such as: <ul style="list-style-type: none"> <li>those in the travel industry,</li> <li>the theatre,</li> <li>cinemas.</li> </ul>	Describe these systems in terms of on-line processing. Do not confuse on-line processing with real time processing such as process control.	<a href="http://www.theteacher99.btinternet.co.uk/theteacher/gcse/newgcse/module9/task10.htm">http://www.theteacher99.btinternet.co.uk/theteacher/gcse/newgcse/module9/task10.htm</a>	(Walmsley, et. al., 2004, Chapter 9)
7.2g	Applications in banking including: <ul style="list-style-type: none"> <li>Electronic Funds Transfer (EFT),</li> <li>cash machines,</li> <li>credit/debit cards,</li> <li>cheque clearing,</li> <li>home banking.</li> </ul>	Use of MICR for inputting cheques (batch processing). Use of ATMs (cash machines) for obtaining cash. The use of the Internet for home banking (on-line processing).	<a href="http://www.theteacher99.btinternet.co.uk/theteacher/gcse/newgcse/module8/task1.htm">http://www.theteacher99.btinternet.co.uk/theteacher/gcse/newgcse/module8/task1.htm</a>  <a href="http://www.theteacher99.btinternet.co.uk/theteacher/gcse/newgcse/module2/task5.htm">http://www.theteacher99.btinternet.co.uk/theteacher/gcse/newgcse/module2/task5.htm</a>  <a href="http://www.bbc.co.uk/schools/gcsebitesize/ict/implications/1lifestyle/rev5.shtml">http://www.bbc.co.uk/schools/gcsebitesize/ict/implications/1lifestyle/rev5.shtml</a>	(Walmsley, et. al., 2004, Chapter 14)

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7.2h	Applications in medicine including: <ul style="list-style-type: none"> <li>doctors' information systems,</li> <li>hospital and pharmacy records,</li> <li>monitoring,</li> <li>expert systems for diagnosis.</li> </ul>	Use of databases for storing patient information and medicine stock files. The use of computers for monitoring and controlling patient condition. The use of expert systems in medical diagnosis.	<a href="http://www.theteacher99.btinternet.co.uk/theteacher/gcse/newgcse/module9/task9.htm">http://www.theteacher99.btinternet.co.uk/theteacher/gcse/newgcse/module9/task9.htm</a> <a href="http://www.theteacher99.btinternet.co.uk/theteacher/gcse/newgcse/module9/task7.htm">http://www.theteacher99.btinternet.co.uk/theteacher/gcse/newgcse/module9/task7.htm</a>	Walmsley, et. al., 2004, Chpts 7 & 15)  (Leadbetter, & Wainwright, 2004, 1.2)
7.2i	Applications in libraries, such as: <ul style="list-style-type: none"> <li>records of books and borrowers</li> <li>the issue of books,</li> </ul>	Use of a borrower file containing the details of each borrower including name, contact details, books borrowed etc. Use of a book file containing details of each book such as title, author, ISBN, Accession number, genre etc. The use of bar codes for books and bar codes or magnetic stripes on borrower cards.	<a href="http://www.theteacher99.btinternet.co.uk/theteacher/gcse/newgcse/module9/task4.htm">http://www.theteacher99.btinternet.co.uk/theteacher/gcse/newgcse/module9/task4.htm</a>	(Walmsley, et. al., 2004, Chapter 7)
7.2j	The use of expert systems, for example: <ul style="list-style-type: none"> <li>in mineral prospecting,</li> <li>car engine fault diagnosis,</li> <li>medical diagnosis,</li> <li>chess games.</li> </ul>	The design and implementation of such a system. Collecting data from experts. The key parts of an expert system such as rule bases, inference engines, knowledge bases, user interfaces.	<a href="http://www.theteacher99.btinternet.co.uk/theteacher/gcse/newgcse/others/expert.htm">http://www.theteacher99.btinternet.co.uk/theteacher/gcse/newgcse/others/expert.htm</a> <a href="http://www.bbc.co.uk/schools/gcsebitesize/ict/databases/0datainfor ev6.shtml">http://www.bbc.co.uk/schools/gcsebitesize/ict/databases/0datainfor ev6.shtml</a>	(Walmsley, et. al., 2004, Chapter 15)  (Leadbetter, & Wainwright, 2004, 1.2)
7.2k	Applications in the retail industry: <ul style="list-style-type: none"> <li>stock control,</li> <li>POS,</li> <li>EFTPOS,</li> <li>internet shopping,</li> <li>automatic reordering.</li> </ul>	<ul style="list-style-type: none"> <li>Use of on-line systems.</li> <li>Use of bar code readers, immediate updating of stock files, automatic re-ordering.</li> <li>Use of EFTPOS to link shops with banks.</li> <li>Use of credit/debit cards.</li> <li>Checking of cards and account information.</li> <li>Use of Internet for on-line shopping.</li> </ul>	<a href="http://www.theteacher99.btinternet.co.uk/theteacher/gcse/newgcse/others/supermarket.htm">http://www.theteacher99.btinternet.co.uk/theteacher/gcse/newgcse/others/supermarket.htm</a> <a href="http://www.bbc.co.uk/schools/gcsebitesize/ict/implications/1lifestyle rev6.shtml">http://www.bbc.co.uk/schools/gcsebitesize/ict/implications/1lifestyle rev6.shtml</a>	(Walmsley, et. al., 2004, Chapter 14)